

What Is Claimed Is:

- Claim 1. An aqueous gel medium for facilitating the electrophoretic separation of analytes present in a sample, said medium comprising:
- 5 (A) a non-crosslinked hydrophilic polymer;
(B) tris(hydroxymethyl)aminomethane – borate buffer;
(C) sodium dodecyl sulfate; and
(D) an organic additive;
- 10 wherein said tris(hydroxymethyl)aminomethane – borate buffer has a pH above 8.0 and below 8.3, and wherein said aqueous gel medium facilitates the electrophoretic separation of said analytes by comprising a molecular sieve.
- Claim 2. The aqueous gel medium of claim 1, wherein said gel medium additionally contains one or more reagent(s) that function to help keep protein analytes in a reduced form.
- 15 Claim 3. The aqueous gel medium of claim 2, wherein said one or more reagent(s) include a reducing reagent.
- Claim 4. The aqueous gel medium of claim 3, wherein said reducing reagent is selected from the group consisting of 2-mercaptoethanol, dithiothreitol (DTT), dithioerythritol (DTE), and tris(2-
- 20 carboxyethyl)phosphine.
- Claim 5. The aqueous gel medium of claim 4, wherein said reducing reagent is dithiothreitol (DTT).
- Claim 6. The aqueous gel medium of claim 2, wherein said one or more reagent(s) include a metal ion chelator.
- 25 Claim 7. The aqueous gel medium of claim 6, wherein said reducing reagent is ethylenediaminetetraacetic acid (EDTA).

- Claim 8. The aqueous gel medium of claim 1, wherein said non-crosslinked hydrophilic polymer is selected from the group consisting of: dextran, polyacrylamide, cellulose derivatives and polyethylene oxide.
- 5 Claim 9. The aqueous gel medium of claim 8, wherein said non-crosslinked hydrophilic polymer is dextran.
- Claim 10. The aqueous gel medium of claim 9, wherein said dextran has a molecular weight of 2,000 kilodaltons and possesses a non-cross-linked structure composed of approximately 95% alpha-D-(1-6) linkages.
- 10 Claim 11. The aqueous gel medium of claim 1, wherein said organic additive is an alcohol.
- Claim 12. The aqueous gel medium of claim 11, wherein said alcohol is present at a concentration of from about 0.1% to about 30% (V/V).
- 15 Claim 13. The aqueous gel medium of claim 12, wherein said alcohol is selected from the group consisting of: methanol, ethanol, ethylene glycol and glycerol.
- Claim 14. The aqueous gel medium of claim 13, wherein said alcohol is glycerol.
- 20 Claim 15. The aqueous gel medium of claim 14, wherein said glycerol is present at a concentration of from about 0.1% to about 30% (V/V).
- Claim 16. The aqueous gel medium of claim 1, wherein said Tris-borate buffer is present at a concentration of from about 0.1M to about 1.0M.
- 25 Claim 17. The aqueous gel medium of claim 1, wherein said aqueous gel medium has a pH of 8.1 ± 0.1 .

- Claim 18. The aqueous gel medium of claim 1, wherein said analytes include analytes selected from the group consisting of: proteins, polypeptides, peptides and nucleic acid molecules.
- 5 Claim 19. A capillary electrophoresis system comprising a capillary tube containing an aqueous gel medium, said medium comprising:
- (A) a non-crosslinked hydrophilic polymer;
 - (B) tris(hydroxymethyl)aminomethane – borate buffer;
 - (C) sodium dodecyl sulfate; and
 - (D) an organic additive;
- 10 wherein said tris(hydroxymethyl)aminomethane – borate buffer has a pH above 8.0 and below 8.3, and wherein said aqueous gel medium facilitates the electrophoretic separation of said analytes by comprising a molecular sieve.
- 15 Claim 20. The capillary electrophoresis system of claim 19, wherein said gel medium additionally contains one or more reagent(s) that function to help keep protein analytes in a reduced form.
- Claim 21. The capillary electrophoresis system of claim 20, wherein said one or more reagent(s) include a reducing reagent.
- 20 Claim 22. The capillary electrophoresis system of claim 21, wherein said reducing reagent is selected from the group consisting of 2-mercaptoethanol, dithiothreitol (DTT), dithioerythreitol (DTE), and tris(2-carboxyethyl)phosphine.
- Claim 23. The capillary electrophoresis system of claim 22, wherein said reducing reagent is dithiothreitol (DTT).
- 25 Claim 24. The capillary electrophoresis system of claim 20, wherein said one or more reagent(s) include a metal ion chelator.

- Claim 25. The capillary electrophoresis system of claim 24, wherein said reducing reagent is ethylenediaminetetraacetic acid (EDTA).
- 5 Claim 26. The capillary electrophoresis system of claim 19, wherein said non-crosslinked hydrophilic polymer is selected from the group consisting of: dextran, polyacrylamide, cellulose derivatives and polyethylene oxide.
- Claim 27. The capillary electrophoresis system of claim 26, wherein said non-crosslinked hydrophilic polymer is dextran.
- 10 Claim 28. The capillary electrophoresis system of claim 27, wherein said dextran has a molecular weight of 2,000 kilodaltons and possesses a non-cross-linked structure composed of approximately 95% alpha-D-(1-6) linkages.
- Claim 29. The capillary electrophoresis system of claim 19, wherein said organic additive is an alcohol.
- 15 Claim 30. The capillary electrophoresis system of claim 29, wherein said alcohol is present at a concentration of from about 0.1% to about 30% (V/V).
- 20 Claim 31. The capillary electrophoresis system of claim 30, wherein said alcohol is selected from the group consisting of: methanol, ethanol, ethylene glycol and glycerol.
- Claim 32. The capillary electrophoresis system of claim 31, wherein said alcohol is glycerol.
- 25 Claim 33. The capillary electrophoresis system of claim 32, wherein said glycerol is present at a concentration of from about 0.1% to about 30% (V/V).

Claim 34. The capillary electrophoresis system of claim 19, wherein said Tris-borate buffer is present at a concentration of from about 0.1M to about 1.0M.

5 Claim 35. The capillary electrophoresis system of claim 19, wherein said aqueous gel medium has a pH of 8.1 ± 0.1 .

Claim 36. The capillary electrophoresis system of claim 19, wherein said analytes include analytes selected from the group consisting of: proteins, polypeptides, peptides, polysaccharides, and nucleic acid molecules.